

CLAIMS

- Sub a1*
- 1        1. A roof structure comprising:  
2              (22) a support web;  
3              (24) an exposure surface perpendicularly bisecting the  
4              support web;  
5              (50) a collector perpendicularly bisecting the support web  
6              opposite the exposure surface, wherein the collector has flanges projecting  
7              outward in opposing lateral directions, each flange having a distal edge  
8              upwardly extending from the flange.
- 1        2. The roof structure of claim 1, wherein the exposure surface and  
2              the collector are integral with the support web to eliminate the necessity for  
3              parts inventory.
- 1        3. The roof structure of claim 2, wherein the distal edge upwardly  
2              extends from each flange at an angle of about 90 to 175 degrees.
- 1        4. The roof structure of claim 2, wherein the distal edge upwardly  
2              extends from each flange at an angle of about 125 to 145 degrees.
- 1        5. The roof structure of claim 2, wherein the exposure surface has  
2              a negative angle to the support web.
- 1        6. The roof structure of claim 2, wherein the collector has a depth  
2              greater than the maximum expected deflection of the roof support.
- 1        7. The roof structure of claim 2, wherein the distal edge is generally  
2              parallel to the support web.
- 1        8. The roof structure of claim 2, wherein the roof structure is  
2              manufactured by a pultrusion process, extrusion process, weldment process,  
3              rollform process, or a combination thereof.
- 1        9. A roof panel and roof structure combination comprising:  
2              (14) at least one roof panel including;

<sup>1</sup> (16) 10. The combination of claim 9, wherein the roof panel includes a  
<sup>2</sup> drip edge extending longitudinally along the interior surface of the roof panel.

1        11. The combination of claim 10, wherein the drip edge extends  
2 parallel with the longitudinal axis of the roof support.

1           12. The combination of claim 9, wherein a first roof panel and a  
2 second roof panel abut opposing sides of the support web, and the exposure  
3 surface of the roof support overlaps the exterior surface of both the first  
4 panel and the second panel.

13. The combination of claim 9, wherein the exposure surface of  
the roof support includes flanges projecting outward in opposing lateral  
directions.

1        14. The combination of claim 13, wherein the exterior surface of  
2 the roof panel includes an arcuate projection and at least one flange of the  
3 exposure surface of the roof support includes an arcuate channel, the arcuate  
4 channel being configured to interface with the arcuate projection of the roof  
5 panel.

15. The combination of claim 14, wherein the arcuate channel  
extends parallel to the longitudinal axis of the roof support.

*Sub A4*

1        16. The combination of claim 9, wherein the roof structure has a  
2 modulus of elasticity of at least about 2,500,000 pounds per square inch.

1        17. The combination of claim 9, wherein the opposing lateral distal  
2 edges of the collector upwardly extend at an angle from the collector of  
3 about 90 to 175 degrees.

1        18. A method of making a roof support comprising:  
2              introducing fibers to a resin bath to form a fiber-resin  
3 combination;  
4              contouring the fiber-resin combination in the shape of a  
5 roof support; and  
6              curing the resin-fiber combination.

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1        19. The method of claim 18, wherein the fibers are selected from a  
2 group consisting of at least glass, graphite, polyethylene, polyvinyl and a  
3 combination of the same.

1        20. The method of claim 18, wherein the resin includes an epoxy  
2 resin.

1        21. The method of claim 18, wherein the fiber-resin combination is  
2 contoured in the shape of a roof support including:  
3              a support web;  
4              an exposure surface perpendicularly bisecting the  
5 support web;  
6              a collector perpendicularly bisecting the support web  
7 opposite the exposure surface, wherein the collector has flanges projecting  
8 outward in opposing lateral directions, each flange having a distal edge  
9 parallel to the support web and upwardly extending from the flange.

1        22. The method of claim 18, further comprising cutting the cured  
2 fiber-resin combination.

1        23. The method of claim 18, wherein the roof support has a  
2 moment of inertia of about 3.180 inches<sup>4</sup>.

1        24. The method of claim 18, wherein the fiber-resin combination is  
2 in the shape of a roof support including a support web having a top surface  
3 and a bottom surface, wherein the top surface is configured to be closely  
4 adjacent to an interior surface of a roof panel.

